



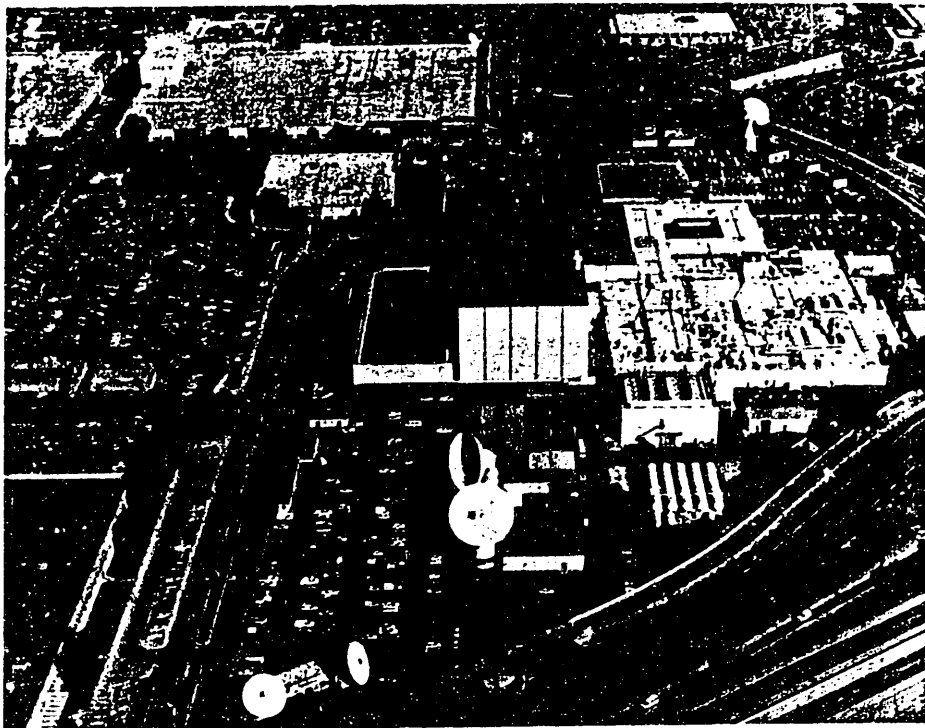
## Fact Sheet

# United States Air Force

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### AIR FORCE SATELLITE CONTROL FACILITY



The Air Force Satellite Control Facility, headquartered at Onizuka Air Force Station, Sunnyvale, Calif., is responsible for acquiring, maintaining and operating a spacecraft support network for the Department of Defense. The facility, a unit of the Air Force Systems Command's Space Division in Los Angeles, Calif., commands and controls orbiting military spacecraft through its worldwide network of satellite tracking and commanding stations.

#### Resources

Satellite Test Center, Onizuka Air Force Station - the nerve center for Satellite Control Facility operations. It is linked to seven remote tracking stations by an intricate communications network.

- Thule Air Base Tracking Station, Greenland.

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- Guam Tracking Station, Anderson Air Force Base.
- Indian Ocean Tracking Station, Seychelles Group
- Royal Air Force Oakhanger Tracking Station, England
- Vandenberg Air Force Base Tracking Station, Calif. - also supports space launches and ballistic missile activities.
- New Hampshire Tracking Station - through landline communications link, it also supports pre-launch checkouts at Cape Canaveral Air Force Station, Fla.
- Hawaii Tracking Station, Kaena Point Air Force Station - assists with ballistic missile tests.

Remote tracking stations have been strategically located to support equatorial launches from the Eastern Space and Missile Center and polar launches from the Western Space and Missile Center, and to continuously support satellites in a variety of orbits. The Satellite Control Facility supports an inventory of approximately 45 satellites whose missions include navigation, meteorology, communications and surveillance. Data recovered from orbiting satellites are recorded at a tracking station. They are then transmitted directly to the Satellite Test Center or are processed in the tracking station's computers then transmitted to the center for data reduction and analysis. Three basic network functions are performed for most satellites:

TELEMETRY - tracking stations receive and record telemetry information about the health and status of the satellite.

TRACKING - the test center sends angular tracking data to the remote stations that predict the satellite's path to the tracking station. The moment the satellite clears the horizon and is acquired by the station, the center is provided the new satellite position information. Both angular and range data are used to update predicted orbital parameters and ephemerides.

COMMANDING - in response to satellite owner instructions, the center directs the responsible tracking station to transmit a variety of commands to the spacecraft.

The center and its seven remote tracking stations constitute the largest and busiest satellite control capability in the free world. Five of the seven stations can support two satellites at one time.

The Satellite Control Facility is entering a period of time in which major changes to current operational methodology and capability will occur. These changes will provide better network survivability, modernized systems and new program support capabilities. Highlights of these changes follow:

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Space operations will be enhanced by the Consolidated Space Operations Center which will have a satellite control facility called the Satellite Operations Complex and a space shuttle operational facility called the Shuttle Operations and Planning Complex. The operations center, which is being developed by Space Division, is located at Falcon Air Force Station near Peterson Air Force Base, Colorado Springs, Colo. It is under operational control of the Air Force Space Command.

The Satellite Operations Complex will expand the satellite control capability needed to meet growing mission requirements and will provide primary support for some satellite programs and contingency support for all other programs.

The Shuttle Operations and Planning Complex will command and control all Defense Department space shuttle missions from launch through landing, and provide shuttle flight planning, flight readiness and support. A new system called data system modernization will centralize command and control of the entire tracking network, and more efficiently use existing resources. Resource scheduling, switching and routing will be under computer control to speed up turnaround times from one operation to another. Telemetry, data reception, analysis, storage, display and archiving will be done by computers without significant operator assistance. Modernization will meet the rising demand for space support and reduce life cycle costs through reduction of equipment and manpower.

More than 3,500 Air Force, contractor and civilian people support the Satellite Control Facility.

Space Division headquarters is studying a number of ways to improve satellite control systems and to ensure effective support to all systems when required. These control systems include satellites, portable replacements for inoperative ground equipment, and communications capability between different tracking networks.

### **Major Contractors**

Ford Aerospace and Communications Corp., Sunnyvale, Calif.

Lockheed Missiles and Space Co., Sunnyvale, Calif.

IBM, Federal Systems Division, Bethesda, Md.